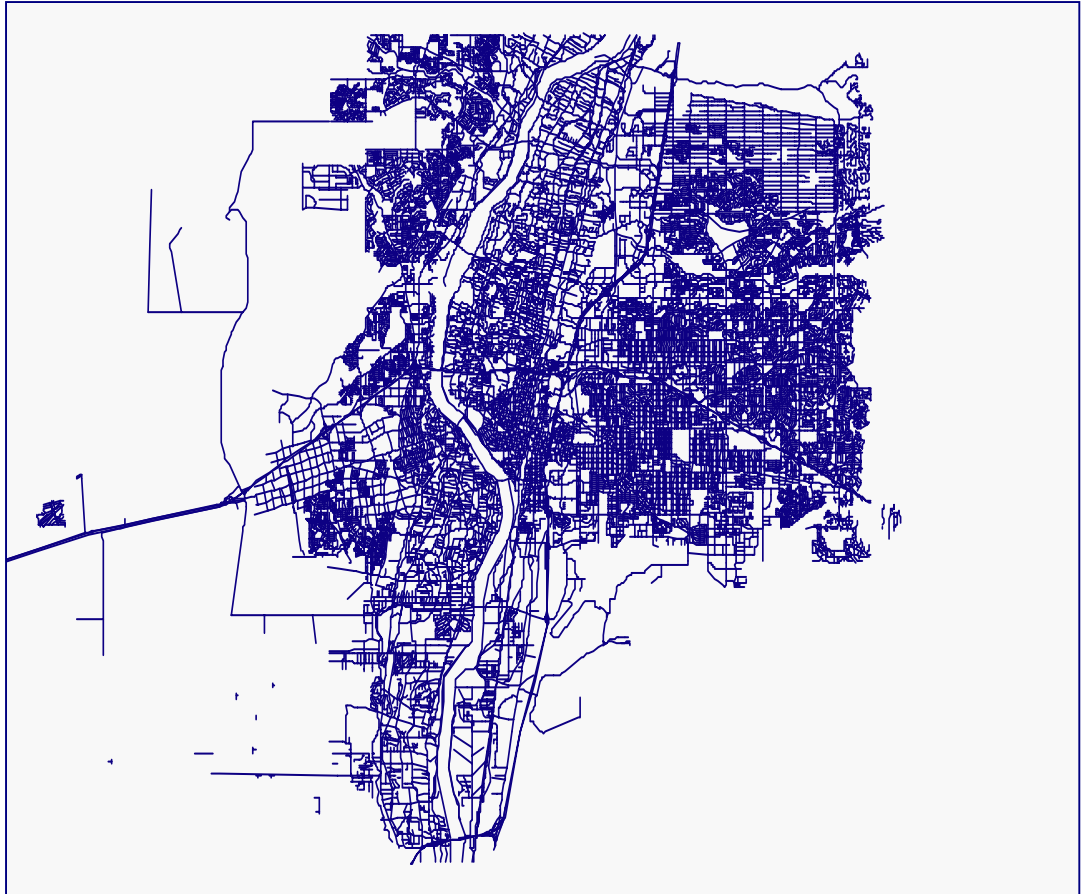

Source Water Assessment Albuquerque Water Supply System Public Water System No. 107-01



New Mexico Environment Department
Drinking Water Bureau
March 2002

Protecting New Mexico's Water Supplies



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ACRONYMS

CERCLA	Comprehensive Environmental Response Compensation and Liability Act
DWB	Drinking Water Bureau
GGAP	Ground-Water Protection Policy and Action Plan
GPAB	Ground Water Protection Advisory Board
GPD/FT ²	Gallons Per Day Per Foot Squared
MCL	Maximum Contaminant Level
NMED	New Mexico Environment Department
NMED-DWB	New Mexico Environment Department Drinking Water Bureau
PIC	Policy Implementation Committee
PSOC	Potential Sources of Contamination
RCRA	Resource Conservation and Recovery Act
SDWA	Safe Drinking Water Act
SWA	Source Water Assessment
SWAPP	Source Water Assessment and Protection Program
WHPA	Wellhead Protection Area



SOURCE WATER ASSESSMENT OF THE ALBUQUERQUE WATER SUPPLY SYSTEM

INTRODUCTION

This Source Water Assessment (SWA) of the Albuquerque Water Supply System,¹ conducted by the New Mexico Environment Department Drinking Water Bureau (NMED-DWB), is part of a national effort to provide for the protection and benefit of public water systems, and for the support of water monitoring flexibility through the assessment of the susceptibility of drinking water sources to contamination, as authorized under the 1996 amendments to the Safe Drinking Water Act Source Water Assessment and Protection Program (SWAPP). Further, states and localities are encouraged to pursue management strategies that coordinate and incorporate SWA findings with other programs² protective of drinking water sources.

The SWA is intended to serve as a “snap-shot” of potential sources of contamination³ (PSOC) of drinking water sources based on existing data. The assessment is not an evaluation of the effectiveness of protection measures currently employed by a water system, but rather the assessment is an evaluation of the potential contaminant impact of source water, based on susceptibility criteria.

Four key elements were incorporated in the SWAs: 1) source area delineation, 2) potential sources of contamination inventory, 3) susceptibility analysis, and 4) recommendations and reporting. The four elements used to assess the system are similar to SWAs of other systems and are described as follows.

¹ SWAs were conducted for the system’s ninety-six drinking water production wells located throughout twenty-five well fields. All water sources assessed were ground water wells.

² As enumerated by the United States Environmental Protection Agency such programs may include the following: Wellhead Protection, Interim Monitoring Relief, Alternative Monitoring, Chemical Monitoring Reform, Surface Water Treatment/Disinfection Byproducts Rule, Underground Injection Control: Class V Wells, Ground Water Disinfection Rule, Capacity Development, Operator Certification, Water Quality Standards, Clean Water Act State Revolving Fund, Clean Water Act Monitoring and Data Management Programs, Nonpoint Source Program, Total Maximum Daily Load Program, National Estuary Program, Wetlands Program, National Pollutant Discharge Elimination System Program, and linkages to other programs such as Pesticide State Management Plans, Pollution Prevention, Radiation, Resource Conservation and Recovery Act (RCRA) Subtitle C and Subtitle D, Superfund, Toxic Substances Control, Toxics Release Inventory, Underground Storage Tank, and Emergency Planning and Community Right-To-Know Act.

³ PSOC are broad land-use categories, facilities, or activities that store, use, or produce as a product or by-product any contaminant regulated under the Safe Drinking Water Act, and the New Mexico Pesticide Management Plan. *This report is for information purposes only, and is intended to make water system managers and consumers aware of some of the possible risks to their water supply. Identification of PSOC within a source water protection zone is not an assertion on the part of NMED that the water supply will be impacted by a particular contaminant. All land uses, facilities, and activities listed as PSOC are included in the inventory, regardless of existing safeguards, materials-handling practices, or compliance history.*

SOURCE WATER ASSESSMENT

SOURCE AREA DELINEATION

The State of New Mexico's *Designated Fixed Radius* method was used to delineate each of the system's water sources. The method utilizes a 1,000-foot radius (72.12 acres) as the delineated area or *capture zone*,⁴ which is further subdivided into three zones. Zone A represents a radius that is from 0 to 200 feet from the wellhead, Zone B 200 to 500 from the wellhead, and Zone C is the area between 500 to 1,000-feet of the wellhead.

Property parcel boundaries within the delineated area were used to determine the appropriate zone of influence (A, B, or C) of the PSOC. For instance, where a PSOC was located within a parcel boundary that overlaid more than one zone, the zone closest to the wellhead was selected as the zone of influence. Figure 1 shows an example of a source area delineation.

EXAMPLE OF SOURCE AREA DELINEATION MAP

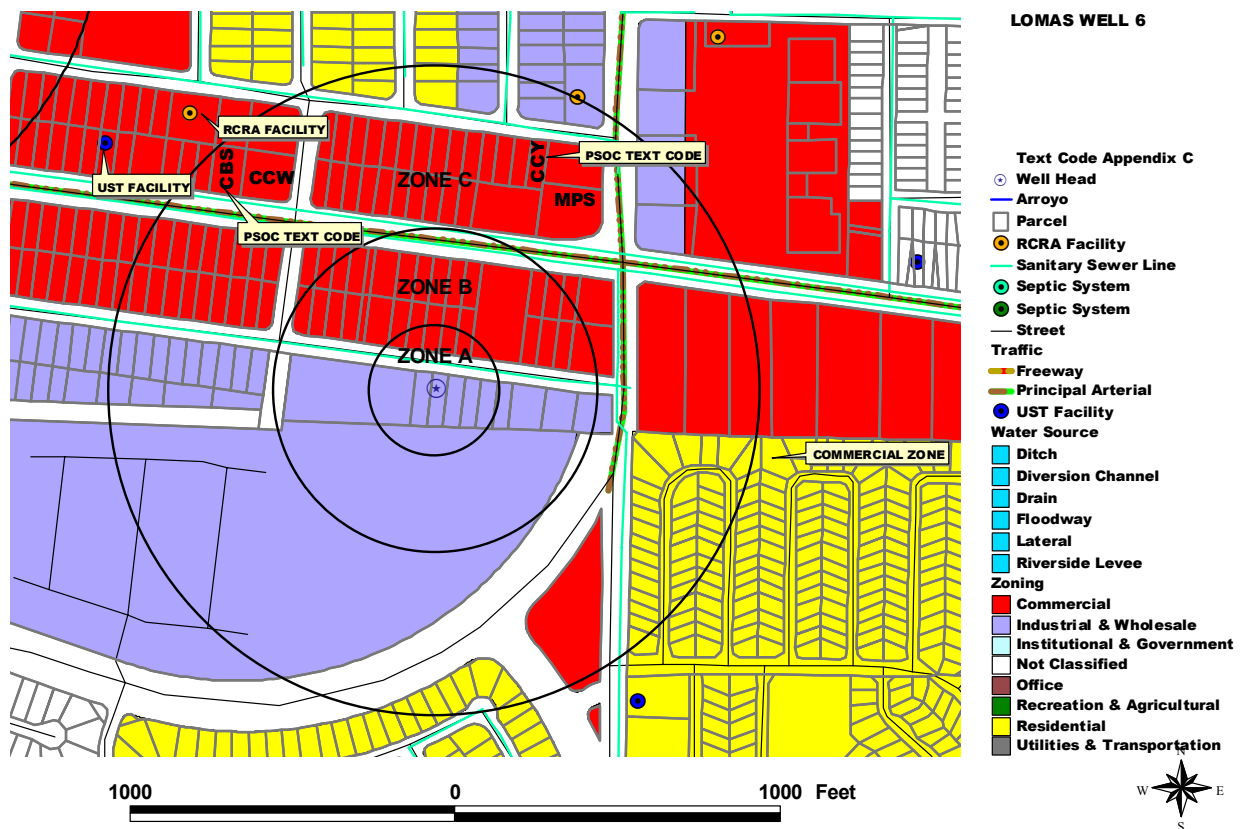


Figure 1 Example of a Source Area Delineation by Radii Zones A, B, and C. Parcels, zoning, and streets are shown, in addition to points and text codes associated with Potential Sources of Contamination. Legend symbols may not apply to all water sources. For instance, in the example an arroyo and recreation area are not located within the source area delineation.

⁴ Capture zones for pumping wells are affected by a number of variables, and the method used to estimate them necessarily varies according to the complexity of area hydrogeology and the amount of information available on the well and underlying aquifer. The fixed radius method was used in this assessment as it best coincided with work in progress by Bernalillo County and the City of Albuquerque under the Ground-Water Protection Policy and Action Plan (see footnote 9).

POTENTIAL SOURCES OF CONTAMINATE INVENTORY

PSOC regulated by the Safe Drinking Water Act (SDWA) were inventoried as required under the SWA process. Only facilities and/or land use where potential use of SDWA regulated contaminants may pose a **significant** likelihood of impacting ground water were identified as PSOC. PSOC, along with their associated codes, and Contaminants of Concern generally associated with the PSOC are listed in Appendices C and D, respectively.

Database research⁵ and onsite surveys were used to identify PSOC within the delineated areas. As shown in Figure 1 above, PSOC identified from the databases, such as UST facilities are shown as points, while PSOC text codes indicate that the PSOC were identified during onsite surveys.

SUSCEPTIBILITY ANALYSIS

A susceptibility analysis⁶ was performed using decision matrices. Susceptibility was defined as a combination of the **vulnerability** of a water source to contamination due to characteristics of the contaminant, and the **sensitivity** of a water source to contamination due to characteristics of the source area.

VULNERABILITY RANK

Once identified according to zone of influence, a vulnerability⁷ rank was determined based on the number of PSOC located in a particular zone. The vulnerability rank may have been increased due to one or more of the following:

1. State of New Mexico Environment Department *Drinking Water Regulations* (regulations) for compliance samples were exceeded.

⁵Eight databases were used to locate the PSOC. The databases used are as follows: Comprehensive Environmental Response Compensation and Liability Act (CERCLA), 2) RCRA, 3) Underground Storage Tank Bureau (USTB) facilities, 4) Septic Tanks (Bernalillo County), 5) Septic Tanks (City of Albuquerque), 6) Sanitary Sewer lines, 7) Arroyos (arroyos were counted as PSOC if identified as unlined/ or not designated), and 8) Traffic (Middle Rio Grande Council of Governments Functional Classified System was used to estimate high traffic volumes. *Freeways and Expressways* and *Principal Arterials* with greater than 40,000 and 20,000-40,000 vehicles/average weekday traffic, respectively, were identified as PSOC. *No assertion of the accuracy of the databases is made by NMED-DWB.*

⁶ Susceptibility Analysis criteria are explained in further detail in the *State of New Mexico Source Water Assessment and Protection Program*, February 2000 available at <http://www.nmenv.state.nm.us/dwb/swapp.html>.

⁷ This report uses the term *vulnerability* to express the characteristics of contaminants in terms of the likelihood of 1) discharge, 2) spill or accidental release, and 2) the number of potential contaminant sources according to their location to ground water. Determining vulnerability based on the number and location of the PSOC in relation to the wellhead neglects the basic chemical characteristics of the contaminants such as density and volatility, and the likelihood of accidental spills or releases. However, the number and location of contaminant sources capable of impairing a supply well are easily counted. *Please note that vulnerability is not used to describe hydrogeologic related factors as in similar reports. Hydrogeologic factors are incorporated in the sensitivity analysis using DRASTIC (see footnote 8).*

2. Three or more categories of PSOC occurred within the same zone of influence.
3. Records maintained for facilities operating under an New Mexico Environment Department (NMED) Ground Water Discharge Plan, Abatement Plan, Solid Waste Facility Permit, or Underground Storage Tank registration, or operating under an United States Environmental Protection Agency National Pollutant Discharge Elimination System permit or any other federal or state permitting system indicate the effectiveness of treatment processes used and the compliance status of the facility with the terms and conditions of its permit.

Tables 1 and 2 show the vulnerability-ranking scheme and an example of a PSOC inventory.

Table 1				
PSOC RANKING DETERMINATION				
Number of PSOC in Zone	Zone			Ranking
	Zone A	Zone B	Zone C	
	1+	10+	15+	high
	0	8-9	12-14	moderately high
	0	5-7	8-11	moderate
	0	3-4	5-7	moderately low
	0	0-2	0-4	low

Table 2				
PSOC VULNERABILITY INVENTORY AND RANKING				
Map Reference	Description	Zone of Influence	Number of Type	Vulnerability Rank
Map Legend	Sanitary Sewer Line	A	1+	High
Map Legend	Traffic – Principal Arterial	B	0-2	Low
Appendix C	CBS/Automotive Body Shop	C	0-4	Low
Appendix C	CCW/Car Wash	C	0-4	Low
Appendix C	CCY/Construction/Demolition Yard/Staging Area	C	0-4	Low
Map Legend	RCRA Facility	C	0-4	Low
Map Legend	Traffic – Principal Arterial	C	0-4	Low
Map Legend	Sanitary Sewer Line	C	0-4	Low
Appendix C	MPS/Sewage Pump Station	C	0-4	Low

As shown in Table 2, the vulnerability rank for the example is “high,” as Zone A is the zone with the highest ranked PSOC (refer to Source Area Delineation map, page 5).

Sensitivity Rank

The sensitivity of a water source to contamination was determined from ranks calculated for the following four matrices: 1) depth to groundwater (the upper most screened interval), 2) information availability for well construction/integrity, 3) construction and integrity of the well, and, 4) calculated DRASTIC ⁸ Index (refer to Appendix A for matrices). Table 3 provides definitions, explanatory notes, references, and additional information related to the sensitivity criteria.

Table 3	
SENSITIVITY ANALYSIS DEFINITIONS, EXPLANATORY NOTE, and INFORMATION SOURCE (S)	
<i>General Information</i>	
Water Supply Source Name	The name of the well assessed.
Source Type	Where the drinking water comes from, i.e. ground water, surface water, or ground water under the direct influence of surface water.
Susceptibility Analysis Date	The date(s) the susceptibility analysis began and was completed.
Date of PSOC Inventory	The date(s) the onsite inventory began and was completed.
Aquifer Stratigraphic Name	The name given to mappable bodies of basin and valley fill that are grouped as a unit based on origin and position of their composition. The primary Stratigraphic name of the aquifer was used.
Aquifer Saturated Thickness	The thickness of the subsurface wetted zone. Determined from 1) City Water Utility Division records, and 2) City 1995 Wellhead Protection Area (WHPA) spreadsheets.
Hydraulic Conductivity	A description of the rate at which water can move through a permeable medium (vertical movement). Calculated from Thorn, et al, 1993, transmissivities and screen lengths, 2) calculated from specific capacities obtained from well logs and/or city pump test records, and 3) calculated from the Transmissivities and saturated thickness/screen lengths noted in the city's 1995 Wellhead Protection Area (WHPA) spreadsheets.
Transmissivity	The rate at which water can be transmitted through an aquifer or confining bed.(horizontal movement). Calculated from Thorn, et al, 1993, transmissivities and screen lengths, 2) calculated from specific capacities obtained from well logs and/or city pump test records, and 3) calculated from the Transmissivities and saturated thickness/screen lengths noted in the city's 1995 Wellhead Protection Area (WHPA) spreadsheets.
Depth of Screened Interval	The top of the well screen where water is allowed to enter the well casing.

⁸ *DRASTIC* is a method developed in 1987 by the National Ground Water Association to evaluate the potential for ground water contamination in any hydrogeologic setting in the United States, and is an acronym for depth to water (D); net recharge (R); aquifer media (A); soil media (S); topography (T); impact of vadose zone media (I); and aquifer hydraulic conductivity (C). The method assigns a relative rank and weight to each of these factors to determine the relative sensitivity (high, moderate, or low) of a given supply well to surface-derived contamination. The higher the DRASTIC Index, the more sensitive the well is to contamination. The modifications to the original DRASTIC parameters, and rating and weighting factors, as defined in CH2M Hill's *Draft Bernalillo County DRASTIC Update May 31, 2000*, are used in this report. *The DRASTIC procedure is not intended to substitute for onsite inspections and evaluations. Rather, the method is intended to provide a basis for comparative evaluation of geographic areas with respect to their potential for ground water pollution.*

Table 3	
SENSITIVITY ANALYSIS <i>DEFINITIONS, EXPLANATORY NOTE, and INFORMATION SOURCE (S)</i>	
<i>Information Assessment – Administrator and operator knowledge of the water supply system</i>	
Well Casing	Determined from 1) City Water Utility Division records, and 2) well logs.
Location of Screened Interval (s)	Determined from 1) City Water Utility Division records, and 2) well logs.
Total Completion Depth	The depth to water measured from ground surface. Determined from 1) City Water Utility Division records, and 2) well logs.
Static Water Level at Completion	The natural water surface when the well is not being pumped (measured from the ground surface to the water level). Determined from 1) City Water Utility Division records, and 2) well logs.
Pump, Type, Size, and Setting	Determined from City Water Utility Division records, and 2) well logs.
Drilling Log or Equivalent	A log produced by the driller of the well – usually filed at the Office of State Engineer.
<i>DRASTIC Index Parameters</i> (also see footnote 8)	
Depth to Water	The depth to water from ground surface. Determined from records provided by the City Water Utility Division.
Areal Recharge	The amount of areal recharge from recharges the aquifer.
Aquifer Media	Pediments and terraces, the aquifer's primary media, were used for all water sources (see Hawley and Whitworth, 1996 for a comprehensive study on aquifer media).
Surface Soil Permeability	The measure of the flow of water through soil. Values estimated from the Soil Conservation Service's Soil Survey.
General Topography	The slope of the ground surface (estimated from U.S. Topographic maps).
Hydraulic Conductivity	A description of the rate at which water can move through a permeable medium (vertical movement). Calculated from Thorn, <i>et al</i> , 1993, transmissivities and screen lengths, 2) calculated from specific capacities obtained from well logs and/or city pump test records, and 3) calculated from the Transmissivities and saturated thickness/screen lengths noted in the city's 1995 Wellhead Protection Area (WHPA) spreadsheets.
Vadose Zone Impact	Pediments and terraces, the primary vadose zone material types of the Santa Fe Group, were used for all water sources.
<i>Source Area Delineation Data</i>	
Map Legend	Map legend criteria reflect PSOC such as sanitary sewer lines, septic system use, and NMED permitted facilities. In addition, parcels and city zoning are shown. The map legend remains constant throughout the assessment.
Source Area Delineations	The State of New Mexico's <i>Designated Fixed Radius</i> method for the State Sanitary Survey is a 1,000 feet, and is based on an arbitrarily chosen radius.

Rankings were then entered as shown in Table 4, and a final *point sum* determined. Table 5 shows the final ranking criteria for sensitivity, and in this example, sensitivity is ranked as *low*.

Table 4	
COMPOSITE SENSITIVITY RANKING	
Rank for Depth of Screened Interval	
High (25 points)	
Moderately High (20 points)	
Moderate (15 points)	
Moderately Low (10 points)	
Low (5 point)	5
Rank for Well Construction Records	
High (25 points)	
Moderately High (20 points)	
Moderate (15 points)	
Moderately Low (10 points)	
Low (5 point)	5
Rank for Integrity of Construction	
High (25 points)	
Moderately High (20 points)	
Moderate (15 points)	
Moderately Low (10 points)	
Low (5 point)	5
Rank for DRASTIC Index	
High (25 points)	
Moderately High (20 points)	
Moderate (15 points)	
Moderately Low (10 points)	
Low (5 point)	5
<i>Point Sum</i>	20
<i>Rank Assigned (see Ranking Guide, below)</i>	Low

Table 5		
COMPOSITE SENSITIVITY RANK ASSIGNED		
Sum of Sensitivity Points	Composite Sensitivity Range	Composite Rank Assigned
90-100	high	
70-85	moderately high	
50-65	moderate	
30-45	moderately low	
20-25	low	x

Susceptibility Rank

Together, the rankings determined from the vulnerability, high and moderate, respectively in this example, determined the water source susceptibility as shown in Table 6. In this example, the susceptibility rank is **moderate**. Final susceptibility rankings were increased where professional judgment or extenuating circumstances and/or facts dictated an increased rank. Increases in rank are noted in the *Final Rating & Comments* column of Table 7.

Table 6						
SUSCEPTIBILITY RANKING						
Sensitivity Ranking						
Vulnerability Ranking		High	Moderately High	Moderate	Moderately Low	Low
	High	high	high	moderately high	moderately high	moderate
	Moderately High	high	moderately high	moderately high	moderate	moderate
	Moderate	moderately high	moderately high	moderate	moderate	moderately low
	Moderately Low	moderately high	moderate	moderate	moderately low	moderately low
	Low	moderate	moderate	moderately low	moderately low	low

RECOMMENDATIONS and REPORTING

RECOMMENDATIONS: The goal of reducing or eliminating potential contaminant threats within source water protection areas may be met through federal, state, and/or local regulatory/statutory controls, by community planning processes, or by using non-regulatory (voluntary) measures that incorporate public involvement. A primary reference to existing and potential protective measures considered during the SWA is the City of Albuquerque and County of Bernalillo *Ground-Water Protection Policy and Action Plan*.⁹ Further, the Policy Coordinating Committee's report, *Identification and*

⁹ Recognizing the need to address threats to ground water quality, Bernalillo County and the City of Albuquerque initiated the development of a comprehensive ground water protection policy in 1988. The Ground-Water Protection Policy and Action Plan (GGAP), which the County and City adopted in 1993 and 1994 respectively, evolved from numerous technical studies and an extensive public participation process. The GPPAP provides comprehensive guidance to ground water protection activities in the city and county. An appointed seven-member citizens' Ground Water Protection Advisory Board (GPAB) and a City/County staff Policy Implementation Committee (PIC) oversees the implementation of the GPPAP.

Established in 1998, the GPAB has broad oversight responsibilities for the GPPAP, including: identifying means of protecting ground water quality; providing ground water protection advice to City and County elected officials, planning commissioners, and staff; promoting consistency and accountability in City and County ground water protection programs; and engaging in public education and advocacy for effective ground water protection.

Evaluation of Ground-Water Protection Measures and Implementation Mechanisms
GPPAP Task 4 addresses existing and potential approaches toward ground water protection. Recommendations of NMED-DWB regarding the findings from the SWA are similar to the committee's findings, and are as follows:

Sources with Susceptibility Rankings of the following:

1. Vulnerability Ranking

Moderately High to High: Implement zoning ordinances, land-use restrictions, conservation easements, memoranda of understanding or other agreements or resolutions, which preclude future use or development of the delineated area for purposes incompatible with source area protection. Implementation of control and containment, and contingency planning measures as developed under City and State *Best Management Practices*.¹⁰

Moderate or Lower: Implement and/or continue public education, outreach and awareness programs especially within the delineation source area.

2. Sensitivity Ranking

Moderately High to High: Initiate well construction modifications, and/or other control measures designed to improve the physical integrity of the wellhead.

Moderate or Lower: Conduct regular system inspections, operations, and maintenance.

3. Susceptibility Ranking

Moderately High to High: Implement and/or continue increased water sample monitoring. Initiate regulatory/statutory enforcement and/or corrective/remedial action.

Moderate or Lower: Look to the vulnerability and sensitivity rank to determine how the source may be best protected.

REPORTING: The SWA Report is intended primarily to provide water utility companies, and water customers with information about the susceptibility of their water supplies to contamination. The report was provided to the Albuquerque Water Supply System, and is available for review at the New Mexico Environment Department Drinking Water

Because of regulations that are more stringent and management programs, only one significant incidence of ground water contamination has been identified within Bernalillo County in the last several years. This site, the Fruit Avenue Superfund Site, is in its early remediation stages while the San Jose (South Valley) Superfund Site and the AT&SF Railway Superfund Site are both in advanced remediation stages.

¹⁰The State of New Mexico Green Zia Program supports and assists all New Mexico businesses and organizations in establishing best management practices and prevention-based environmental management systems green_zia@nmenv.state.nm.us.

Bureau, 525 Camino de Los Marquez, Suite 4 Santa Fe, NM 87505, or email the Drinking Water Bureau at SWAPP@nmenv.state.nm.us. Please include your name, address, telephone number, and email address, and the name of the Water System. *NMED-DWB may charge a nominal fee for paper copies.* If you have questions, please contact the Drinking Water Bureau at (505) 827-7536 or toll free 1-877-654-8720.

TABLE 7 SOURCE SUSCEPTIBILITY RANKING					
Source Name	Sensitivity Rank	Vulnerability Rank	Susceptibility Rank	Operational Exceptions	Final Rank
ATRISCO 1	Moderately Low	Moderately Low	Moderately Low	-	Moderately Low
ATRISCO 2	Moderately Low	High	Moderately High	-	Moderately High
ATRISCO 3	Moderately Low	High	Moderately High	-	Moderately High
ATRISCO 4	Moderate Low	High	Moderately High	-	Moderately High
BURTON 1	Low	High	Moderate	-	Moderate
BURTON 2	Moderately Low	High	Moderately High	-	Moderate
BURTON 3	Moderately Low	High	Moderately High	-	Moderately High
BURTON 4	Low	High	Moderate	-	Moderate
BURTON 5	Low	High	Moderate	-	Moderate
CHARLES WELLS 1	Moderately Low	High	Moderately High	-	Moderately High
CHARLES WELLS 2	Moderately Low	High	Moderately High	-	Moderately High
CHARLES WELLS 3	Moderately Low	High	Moderately High	-	Moderately High
CHARLES WELLS 4	Moderately Low	High	Moderately High	-	Moderately High
CHARLES WELLS 5	Low	High	Moderate	-	Moderate
COLLEGE 1	Low	Low	Low	Out of Service	Low
COLLEGE 2	Low	High	Moderate	-	Moderate
CORONADO 1	Moderately Low	High	Moderately High	-	Moderately High
CORONADO 2	Low	High	Moderate	-	Moderate
DON 1	Moderately Low	Low	Moderately Low	Out of Service	Moderately Low
DURANES 1	Moderately Low	High	Moderately High	-	Moderately High
DURANES 2	Moderately Low	High	Moderately High	-	Moderately High
DURANES 3	Moderately Low	High	Moderately High	-	Moderately High
DURANES 4	Moderately Low	High	Moderately High	-	Moderately High
DURANES 5	Moderately Low	High	Moderately High	-	Moderately High
DURANES 6	Moderate Low	High	Moderately High	-	Moderately High
DURANES 7	Moderately Low	High	Moderately High	-	Moderately High
GONZALES 1	Moderately Low	High	Moderately High	-	Moderately High
GONZALES 2	Moderately Low	High	Moderately High	-	Moderately High
GONZALES 3	Moderately Low	High	Moderately High	-	Moderately High
GRIEGOS 1	Moderately Low	High	Moderately High	-	Moderately High
GRIEGOS 2	Moderately Low	High	Moderately High	Out of Service	Moderately High
GRIEGOS 3	Moderately Low	High	Moderately High	-	Moderately High
GRIEGOS 4	Moderately Low	High	Moderately High	-	Moderately High
LEAVITT 1	Moderately Low	High	Moderately High	-	Moderately High
LEAVITT 2	Moderately Low	High	Moderately High	-	Moderately High

Source Name	Sensitivity Rank	Vulnerability Rank	Susceptibility Rank	Operational Exceptions	Final Rank
LEAVITT 3	Moderately Low	High	Moderately High	-	Moderately High
LEYENDECKER 1	Moderately Low	High	Moderately High	-	Moderately High
LEYENDECKER 2	Moderately Low	High	Moderately High	-	Moderately High
LEYENDECKER 3	Moderately Low	High	Moderate High	-	Moderately High
LEYENDECKER 4	Low	High	Moderate	-	Moderate
LOMAS 1	Low	High	Moderate	-	Moderate
LOMAS 5	Low	High	Moderate	-	Moderate
LOMAS 6	Low	High	Moderate	-	Moderate
LOVE 1	Low	High	Moderate	-	Moderate
LOVE 3	Low	High	Moderate	-	Moderate
LOVE 4	Low	High	Moderate	-	Moderate
LOVE 5	Low	High	Moderately High	-	Moderately High
LOVE 6	Low	High	Moderate	-	Moderate
LOVE 7	Low	High	Moderate	-	Moderate
LOVE 8	Low	High	Moderate	-	Moderate
MILES 1	Moderately Low	High	Moderately High	Detect Volatile Organic Contaminant	High
PONDEROSA 1	Low	High	Moderate	-	Moderate
PONDEROSA 2	Low	Moderately High	Moderate	-	Moderate
PONDEROSA 3	Low	High	Moderate	-	Moderate
PONDEROSA 4	Low	High	Moderate	-	Moderate
PONDEROSA 5	Low	High	Moderate	-	Moderate
PONDEROSA 6	Low	High	Moderate	-	Moderate
RIDGECREST 1	Low	High	Moderate	-	Moderate
RIDGECREST 2	Low	High	Moderate	-	Moderate
RIDGECREST 3	Low	High	Moderate	-	Moderate
RIDGECREST 4	Low	High	Moderate	-	Moderate
RIDGECREST 5	Low	High	Moderate	-	Moderate
SAN JOSE 1	Moderate	High	Moderately High	Detect Volatile Organic Contaminant 1988 (San Jose Superfund Site)	High
SAN JOSE 2	Moderately Low	High	Moderately High	(San Jose Superfund Site)	High
SAN JOSE 3	Moderately Low	High	Moderately High	(San Jose Superfund Site)	High
SANTA BARBARA 1	Moderately Low	High	Moderately High	-	Moderately High
THOMAS 1	Low	High	Moderate	-	Moderate
THOMAS 2	Low	High	Moderate	-	Moderate
THOMAS 3	Low	High	Moderate	Out of Service	Moderate

TABLE 7 SOURCE SUSCEPTIBILITY RANKING					
Source Name	Sensitivity Rank	Vulnerability Rank	Susceptibility Rank	Operational Exceptions	Final Rank
THOMAS 4	Low	High	Moderate	-	Moderate
THOMAS 5	Low	High	Moderate	-	Moderate
THOMAS 6	Low	High	Moderate	-	Moderate
THOMAS 7	Low	High	Moderate	-	Moderate
THOMAS 8	Moderate	High	Moderately High	-	Moderately High
VOL ANDIA 1	Moderately Low	Moderately Low	Moderately Low	-	Moderately Low
VOL ANDIA 2	Moderately Low	High	Moderately High	-	Moderately High
VOL ANDIA 3	Moderately Low	High	Moderately High	-	Moderately High
VOL ANDIA 4	Moderately Low	Moderately High	Moderately High	-	Moderately High
VOL ANDIA 5	Moderately Low	Moderately Low	Moderately Low	-	Moderately Low
VOL ANDIA 6	Moderately Low	High	Moderately High	Detect Volatile Organic Contaminant (Digital Investigation)	High
VOLCANO CLIFFS 1	Low	High	Moderate	-	Moderate
VOLCANO CLIFFS 2	Low	Low	Low	-	Low
VOLCANO CLIFFS 3	Low	High	Moderate	-	Moderate
WALKER 1	Low	High	Moderate	-	Moderate
WALKER 2	Low	High	Moderate	-	Moderate
WEBSTER 1	Low	High	Moderate	-	Moderate
WEBSTER 2	Low	High	Moderate	-	Moderate
WEST MESA 1	Low	High	Moderate	-	Moderate
WEST MESA 2	Moderately Low	High	Moderately High	Out of Service	Moderately High
WEST MESA 3	Moderately Low	High	Moderately High	-	Moderately High
WEST MESA 4	Moderately Low	High	Moderately Low	-	Moderately Low
YALE 1	Moderately Low	High	Moderately High	Detect Volatile Organic Contaminant (Undetermined Source)	High
YALE 2	Moderately Low	High	Moderately High	Detect Volatile Organic Contaminant (Undetermined Source)	High
YALE 3	Moderately Low	High	Moderately High	-	Moderately High
ZAMORA 1	Moderately Low	High	Moderately High	-	Moderately High
ZAMORA 2	Moderately Low	High	Moderately High	-	Moderately High

In conclusion, the Albuquerque Water Supply System is well maintained and operated, and sources of drinking water are generally protected from potential sources of contamination based on well construction, hydrogeologic settings, and system operations and management. The susceptibility rank for the entire water system is moderate, which is the median rank when considering all the final ranks of the systems water sources assessed.

Although throughout the United States it is common to find potential sources of contamination located atop wellheads, continued regulatory oversight, wellhead protection plans, and other planning efforts continue to be primary methods of protecting and ensuring high quality drinking water. The City of Albuquerque and Bernalillo County's Ground-Water Protection Policy and Action Plan continues to be a proactive approach for protecting the system's source water. Continued coordination and integration of management plans and strategies between state and local governments should continue to be fostered.

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